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MINERALS PROGRAM
FILE COPY

May 1, 1989

Mr. Ken A. Kluksdahl
Tenneco Minerals
P.O. Box 2650
955 North 1300 West #4
St. George, Utah 84770

Re: Tenneco Minerals
Gold Strike Mine Phase II
Review Comments

Dear Mr. Kluksdahl:

We have reviewed the plans and specifications submitted for review and have the following comments:

Plans:

Drawing 1 of 4

- a. The flow plan for storm water control around the extension pads and around the ore stockpile and crusher pad must be provided.
- b. An indication for proper orientation on the site, e.g., North Arrow, must be provided.
- c. The overall dimensions of the first and second extension pads must be provided.
- d. The routing of process solution piping must be provided for review.

Drawing 2 of 4

- a. References in Section A-A, Section B-B, and detail 3 to compacted clay should be replaced with details of the liner and leak detection system.
- b. The height of the center berm and barrier berm for the heap leach pad must be specified.
- c. The material used to backfill the anchor trench must be compacted.
- d. The horizontal dimension of the Barrier Berm must be provided.
- e. A dimensional reference must be made between the 4 inch diameter leakage collection pipes and the center mounds. This is to establish proper design so the maximum leakage flow path distance will be established.

- f. A leakage collection pipe should be located on the down slope terminus of the leak detection media layer.
- g. The horizontal and vertical dimension of the drainage ditch must be provided.
- h. The function of the perforated leach lines shown in Detail No. 3 should be presented.
- i. Details or specific proceedings for removal of the existing barrier berm located near Detail No. 4 for connection to leach pad extension no. 1 must be provided for review.
- j. Additional information about the implementation of the interface between new and existing liner systems located in the area of Detail No. 4 must be provided for review.

Drawing 3 of 4

- a. The orientation of the 6 inch perforated leach line shown in Detail No. 4 must be clarified.
- b. References in Section C-C, Section D-D, Detail No. 4 and Detail No. 5 to compacted clay should be replaced with details of the liner system.
- c. The function of the 6-inch perforated leach lines shown in Detail No. 5 and also in the plan for Leach Pad Extension No. 2 should be presented.

Drawing 4 of 4

- a. Details of how process solutions will flow into the solution ditch must be shown.
- b. The minimum set back distance of the toe of the ore body from the edge of the liner system must be shown.
- c. Each leak detection discharge pipe must have provisions to hold small amounts of leakage (including an overflow device) for routine operations inspection.
- d. Access must be provided so the operator may easily inspect the leak detection devices mentioned in (c) above.

Specifications:

- a. The specifications must state that the testing laboratory shall insure that all HDPE test coupons shall be adequately cured prior to conducting tests.

- b. It is suggested that the clay liner permeability specification should read 2.0×10^{-7} centimeters per second or less.
- c. The frequency of the moisture content and permeability tests for the clay liner must be specified.
- d. The field density test in conjunction with the moisture content test shall be used to evaluate the permeability of the clay liner based upon previously established correlation.
- e. The gradation and permeability requirements for the leak detection media must be included in the specifications.
- f. The gradation, permeability requirements and statement that the leak detection base be free from pockets and lenses of sand and gravel must be included in the specifications.
- g. The thickness, gradation and minimum permeability of the process solution collection system must be included in the specifications.
- h. Specification reference 3.3 should be revised to state that the contractor will keep the clay liner surface wet to prevent cracking.
- i. Specification reference 3.5 should be revised to state that the HDPE sheets should not be slid over the subgrade.
- j. The specification must be revised to state that no folded sheets of HDPE liner will be installed.
- k. Specifications reference 4.4 should be clarified to define who will test the other 90% of HDPE test coupons.
- l. Differences between detail in drawing 4 of 4 and Serrot Corp. drawing 2-80309/1 must be resolved.

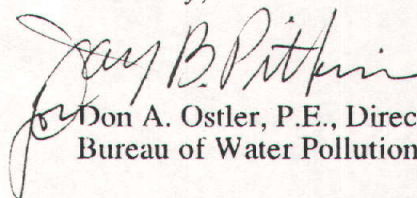
General Comments:

- a. The proposal for disposition of sulfide ore and waste will require further discussion and review.
- b. The approved operation and maintenance manual, closure plan and contingency plan shall be re-evaluated and appropriate modifications to accommodate the additional pad area made and submitted for review.
- c. The maximum particle size of the ore which will be placed in the first lift must be stated.

Ken A. Kluksdahl
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This concludes our comments, please call Charlie Dietz of my staff if there are any questions.

Sincerely,



Don A. Ostler, P.E., Director
Bureau of Water Pollution Control

CGD:ag

cc: Mr. Wayne Thomas, Southwest District Health Dept.
Mr. Bill Dawson, Southwest District Health Dept.
Mr. Lowell Braxton, Division of Oil, Gas & Mining.

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